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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/009,979

03/27/2002

Georg Denk

1454.1205

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7590

10/05/2004

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EXAMINER

THOMPSON, ANNETTE M

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/009,979

Applicant(s)

DENK, GEORG

Examiner

A. M. Thompson

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicants' amendment to 10/009979 has been examined. The abstract is amended. The substitute specification has been entered. Claims 111-16, 18, 19, 23 and 24 are amended. Claims 25 is added. Claims 11-25 are pending.

1. Applicants' amendment is considered persuasive in part. The applicable rejections from the prior office action are incorporated herein.

#### ***Claim Objections***

2. Claims 12 are objected to for the following reasons: Pursuant to **claim 12**, "the modified circuit" lacks sufficient antecedent basis; delete precatory language ("can be") and insert - -is- - in lieu thereof. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

#### **Rejection of claims 11-24**

4. Claims 11-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Ulrich Bretthauer et al. paper (the Bretthauer paper) entitled BRASIL: The Braunschweig Mixed Mode-Simulator for Integrated Circuits in view of the H. Spiro paper (the Spiro paper) entitled Simulation of Integrated Circuits. The Bretthauer paper discloses the parallel calculation of an operation point as part of its simulation algorithm but does not specifically disclose the use of the charging method. The Bretthauer paper

Art Unit: 2825

merely discloses at page 4, column 2, that an operation-point analysis has to be performed. The Spiro paper teaches the use of the charging method in the parallel calculation of the operating point. It would have been obvious to one of ordinary skill in the art to use the Spiro paper method of simulation using the charging method with the Bretthauer paper simulation algorithm to achieve rapid and accurate convergence.

5. Pursuant to claim 11, the Bretthauer paper discloses the parallel calculation of the operating point comprising partitioning the circuits into a number of partitions (the Bretthauer paper, § 4. Coupling of the simulation algorithms); using the charging method for the parallel calculation of the partitions (the Spiro paper); providing a chargeable dynamic element at each node of the circuit (Bretthauer paper, § 4, wherein the capacitor is the chargeable dynamic element; Coupling of the simulation algorithms, column 2).

6. Pursuant to claim 12, wherein each circuit node is connected a predetermined value set by a capacitance (the Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2) to calculate an operating point (the Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2).

7. Pursuant to claim 13, wherein a capacitance having the same value is provided at each node of a partition (the Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2; see also Figure 4).

8. Pursuant to claim 14, wherein each node of a partition is connected to the same potential by means of a capacitance (the Bretthauer paper, § 4).

9. Pursuant to claim 15, wherein a capacitance having the same value is provided at each node of all partition (the Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2; see also Figure 4).
10. Pursuant to claim 16, wherein each node of all partition is connected to the same potential by means of a capacitance (the Bretthauer paper, § 4).
11. Pursuant to claim 17, wherein the potential is connected to ground (see Figure 4).
12. Pursuant to claim 18, wherein the operating point of the circuit is calculated with a suitable step-by-step change in the value of the capacitance, and the operating point is recalculated until the values of the capacitances are zero (the Spiro paper; Bretthauer, § 3, last 3 paragraphs).
13. Pursuant to claim 19, wherein each node of a partitions is connected to the same potential via a capacitance (the Bretthauer paper, § 4).
14. Pursuant to claim 20, wherein a capacitance having the same value is provided at each node of all partition (the Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2; see also Figure 4).
15. Pursuant to claim 21, wherein each node of all partitions is connected to the same potential by means of a capacitance (the Bretthauer paper, § 4).
16. Pursuant to claim 22, wherein the potential is connected to ground (see Figure 4).
17. Pursuant to claim 23, wherein the operating point of the circuit is calculated with a suitable step-by-step change in the value of the capacitance, and this step is repeated

Art Unit: 2825

until the values of the capacitances are zero (the Spiro paper; Bretthauer, § 3, last 3 paragraphs).

18. Pursuant to claim 24, which recites a computer readable medium, storing a program to control a computer to perform a method for parallel calculation (this limitation is implicitly incorporated as part of the simulators disclosed in the Brasil paper and the Bretthauer paper as circuit simulators function with computer readable media); the method comprising partitioning the circuits into a number of partitions (the Bretthauer paper, § 4.); using the charging method for the parallel calculation of the operating point partitions (the Spiro paper); providing a dynamic element at each node of the circuit (Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2).

19. Pursuant to claim 25, the Bretthauer paper discloses the parallel calculation of the operating point comprising partitioning the circuits into a number of partitions (the Bretthauer paper, § 4. Coupling of the simulation algorithms); using the charging method for the parallel calculation of the partitions (the Spiro paper); adding a chargeable dynamic element at each node of the circuit (Bretthauer paper, Figure 4); providing a chargeable dynamic element at each node of the circuit (Bretthauer paper, § 4, wherein the capacitor is the chargeable dynamic element; Coupling of the simulation algorithms, column 2); whereby an equal capacitance is provides at each node of a partition as the chargeable dynamic element (Bretthauer paper, Figure 4 illustrates capacitors which may have equal value).

***Remarks***

20. Applicants' added limitation of "chargeable dynamic element" is insufficient to overcome the prior art; capacitors are chargeable elements and the Bretthauer paper discloses the use of capacitors. Furthermore, although Applicant's specification lacks enablement for providing an equal capacitance at each node of a partition, the Bretthauer paper at least suggests this limitation.

***Conclusion***

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please reference the PTO-892 for a complete listing.

23. Any inquiry concerning this communication or earlier communications should be directed to Examiner A.M. Thompson whose telephone number is (571) 272-1909. The Examiner can usually be reached Monday thru Friday from 8:00 a.m. to 4:30 p.m..

Art Unit: 2825

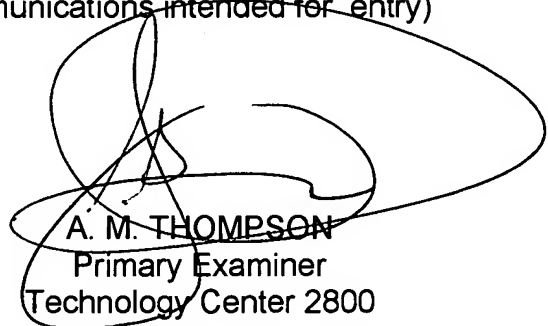
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24. Responses to this action should be mailed to the appropriate mail stop:

Mail Stop \_\_\_\_\_  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for all **OFFICIAL** communications intended for entry)



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